UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,694	11/24/2003	Sanjai Kohli	SIRF.P021.US.D1.C2	8311

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EXAMINER
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ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/722,694	KOHLI ET AL.
	Examiner	Art Unit	
	Ted M. Wang	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 May 2007</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>21-32</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>21-32</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   The indicated allowability of claims 21-32 is withdrawn in view of the previously

cited reference(s) to Fenton (US 5,414,729). Rejections based on the newly cited

reference(s) follow.

Claim Objections

2.   Claims 26, 28 and 30 are objected to because of the following informalities:

   ❏ Claims 26, 28 and 30, line 2, change "then" to --- the ---, respectively.

   ❏ Claims 28 and 30, line 3, change ";" to --- . ---, respectively.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

   A person shall be entitled to a patent unless –

   (b) the invention was patented or described in a printed publication in this or a foreign country or in public
   use or on sale in this country, more than one year prior to the date of application for patent in the United
   States.

4.   Claims 21-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Fenton

(US 5,414,729).

   ❏ With regard claim 21, Fenton discloses a system for operating a GPS coarse

      acquisition (C/A) code receiver (Fig. 1 element 10 and column 4 lines 28-40)

      comprising:

a plurality of channel means (Fig.1 elements 22a-22n and Fig.2, column 4 lines 34-35 and column 5 lines 12-33), each comprising:

means for forming x multibit digital segment values per C/A code period, x being an integer (column 4 lines 48-55), each multibit digital segment value representing a sequential code segment of a received composite of satellite signals (column 4 line 48 – column 5 line 10, Fig.5 and column 6 lines 1-15); and

a plurality of correlating means (Fig.2 elements 240-1 to 240-m) for correlating each multibit digital segment value with n satellite specific set sets of m different time delayed segments of C/A code, n and m being integers, to form at least n times m delay specific correlation values (column 1 lines 31-53 and column 8 line 37 – column 9 line 12), wherein m (column 13 lines 7-11, where m=19) is greater than the number of bits in each multibit digital segment value (Fig.2 element 220 output to element 235, π_0-π_2).

❏ With regard claim 22, Fenton further discloses a quadrature signal separator, the quadrature signal separator representing each digital segment value as a pair of quadrature signals (Fig.1 elements 14 and 20).

❏ With regard claim 23, Fenton further discloses

a numerically controlled oscillator (column 6 lines 31-37),

a multiplier (Fig.2 element 235);

a sine and cosine table (Fig.3 element 222) accessed by the numerically controlled oscillator to provide rotational values (Fig.2 element 220 outputs) for each pair of quadrature signals, the rotational values being multiplied with the

quadrature signals in the multiplier and the product thereof being provided m the

correlators for computing the correlation values (column 8 lines 37-60).

□ With regard claim 24, Fenton further discloses wherein each pair of time delayed

segments within each set of time delayed segments are separated from each

other by a multiple of half-chip separations (column 9 lines 31-42).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed
> or described as set forth in section 102 of this title, if the differences between the
> subject matter sought to be patented and the prior art are such that the subject
> matter as a whole would have been obvious at the time the invention was made
> to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was
> made.

6.   Claims 25-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Fenton (US 5,414,729).

□ With regard claim 25, Fenton further discloses wherein each pair of time delayed

segments within each set of time delayed segments are separated from each

other by a multiple of 0.2 chip separation (Fig.10 element 38-49).

Fenton discloses all of the subject matter as described in the above

paragraph except for specifically teaching that each set of time delayed

segments are separated from each other by a multiple of 0.25 (quarter-chip) chip

separation. Such limitation is merely a matter of design choice and would have

been obvious in the system of Fenton. The limitations in claim(s) do not define a

patentably distinct invention over that in Fenton since both the invention as a whole. Especially, the page 33, lines 1-5, of the instant application specifically teaches that using fixed delays of <u>one third</u>, <u>one quarter</u>, <u>one fifth (0.2)</u> or other value of chip width will substantially reduce the maximum position error. Therefore, <u>to select the fixed delay of one quarter chip separation</u> in Fenton's system would have been a matter of obvious design choice to one of ordinary skill in the art.

❑ With regard claims 26-30 and 32, Fenton discloses all of the subject matter as described in the above paragraph except for specifically teaching that the numbers of n and m are selected from one or more times of the prime factors of the number of chips in a C/A code, which are 11 and 31. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to select n and m from one or more times of the prime factors of the number of chips in a C/A code, which are 11 and 31. Applicant has not disclosed selecting n and m from one or more times of the prime factors of the number of chips in a C/A code, which are 11 and 31, provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with slecting n and m other than one or more times of the prime factors of the number of chips in a C/A code, for example, selecting m=19 (column 13 lines 7-11) in order to acquire carrier and code lock over a wide range of operating conditions even in the presence of multipath distortion (column 3 lines 50-58).

Therefore, it wou"d have been obvious to one of ordinary skill in this art to modify [Reference A] to obtain the invention as specified in claims 26-30 and 32.

❏ With regard claim 31, Fenton further discloses wherein n is as many as 11 (column 4 lines 11-47).

Fenton discloses all of the subject matter as described in the above paragraph except for specifically teaching that n is greater or equal to 12. Such limitation is merely a matter of design choice and would have been obvious in the system of Fenton. The limitations in claim(s) do not define a patentably distinct invention over that in Fenton since both the invention as a whole. Therefore, to select n is greater or equal to 12 in Fenton's system would have been a matter of obvious design choice to one of ordinary skill in the art.

Conclusion

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Ted M Wang
Examiner
Art Unit 2611

Ted M. Wang